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we have previously shown⁴ that mitotane treatment does not affect the malignant steroid fingerprint and recently provided proof of principle for the use of urine steroid metabolomics for recurrence detection in patients with completely resected adrenocortical carcinoma.⁵

The machine learning-based algorithm we used for the diagnostic interpretation of urine steroid profiling results was developed from data from a retrospectively collected cohort of patients with adrenocortical adenomas and carcinomas, prior to its prospective validation in the EURINE-ACT study.1 Age-based and sex-based reference ranges are irrelevant to the diagnostic use of our algorithm. In our previous proof-of-principle study⁶ on the use of urine steroid metabolomics for the differentiation of benign and malignant adrenocortical tumours, we showed that the malignant steroid fingerprint detected in patients with adrenocortical carcinoma is orders of magnitude higher than the relatively minor differences in steroid metabolite excretion seen between sexes and adult age groups.

We acknowledge that global rollout of urine steroid metabolomics will depend on the regional availability of mass spectrometry technology, but we are confident that its rollout across Europe can be achieved fairly soon, primarily implemented through a network of expert laboratories delivering centralised service provision and maintaining quality control through cross-validation and certification.

WA is an inventor and MB is a contributor on a patent on the use of steroid profiling as a biomarker tool for the differential diagnosis of adrenal tumours (PCT/GB2010/000274). All other authors declare no competing interests. The views expressed are those of the authors and not necessarily those of the study funders.

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- Bancos I, Taylor AE, Chortis V, et al. Urine steroid metabolomics for the differential diagnosis of adrenal incidentalomas in the EURINE-ACT study: a prospective test validation study. Lancet Diabetes Endocrinol 2020; 8:773-81.
- 2 Fassnacht M, Arlt W, Bancos I, et al. Management of adrenal incidentalomas: European Society of Endocrinology Clinical Practice Guideline in collaboration with the European Network for the Study of Adrenal Tumors. Eur J Endocrinol 2016; 175: G1–34.
- Sagmeister MS, Taylor AE, Fenton A, et al. Glucocorticoid activation by 11β-hydroxysteroid dehydrogenase enzymes in relation to inflammation and glycaemic control in chronic kidney disease: a crosssectional study. Clin Endocrinol (Oxf) 2019; 90: 241–49.
- 4 Chortis V, Taylor AE, Schneider P, et al. Mitotane therapy in adrenocortical cancer induces CYP3A4 and inhibits 5α-reductase, explaining the need for personalized glucocorticoid and androgen replacement. J Clin Endocrinol Metab 2013; 98: 161–71.
- 5 Chortis V, Bancos I, Nijman T, et al. Urine steroid metabolomics as a novel tool for detection of recurrent adrenocortical carcinoma. J Clin Endocrinol Metab 2020; 105: e307–18.
- 6 Arlt W, Biehl M, Taylor AE et al. Urine steroid metabolomics as a biomarker tool for detecting malignancy in adrenal tumors. J Clin Endocrinol Metab 2011; 96: 3775–84.

Tackling the COVID-19 pandemic in paradise: the Mauritian experience

Mauritius is a subtropical island located in the southwestern Indian Ocean, with a multiethnic population of about 1·3 million people. Mauritius also has one of the highest prevalences of diabetes worldwide, a condition linked to the severity of COVID-19.

Despite the challenges in curbing the COVID-19 pandemic, Mauritius scored a very high mark on the Oxford COVID-19 Government Response Stringency Index³ in the middle of April, 2020. In part, this success was due to a prompt and consistent governmental strategy.

On Jan 21, all passengers arriving from China were quarantined for 14 days under strict sanitary conditions. 1 day later, the Prime Minister of Mauritius chaired a highlevel committee meeting with all his ministers, as well as a representative from WHO to discuss approaches to control the pandemic. Because Mauritius is a very popular tourist destination, it was vital to control the arrival of overseas travellers with COVID infection. Temperature checks for passengers arriving at the international airport were introduced, and all visitors from high risk countries (eg, Singapore, Malaysia, and Thailand) were also quarantined from Feb 11.

On March 18, the first three cases of COVID-19 were registered in travellers and consequently on March 19, the borders were closed. With the escalation of cases, a curfew was imposed on March 20, and eventually a complete lockdown was implemented on March 24.

Mauritius and its citizens also stood firm against the pandemic. Work access permits were essential to avoid heavy fines and legal action. Health services were fully functional including a hotline telephone service to answer public gueries. Between March 21, and July 20, 99 678 calls were received and attended to. A home visit team was set up which provided domiciliary visits consultations, and basic treatment. A mobile application, beSafeMoris was launched on March 26, allowing the Mauritian population to obtain realtime information about health and safety measures.

In parallel, regional public health superintendents and several rapid response teams were responsible for the transfer of patients with suspected COVID-19 to quarantine and treatment centres and a contact tracing team aimed to identify related cases. WHO infection control standard precautions were strictly followed during the pandemic.⁴

For the **beSafeMoris** app see https://besafemoris.mu/

Published Online September 24, 2020 https://doi.org/10.1016/ S2213-8587(20)30336-3 Because the pandemic originated during winter in the southern hemisphere, the annual anti-influenza vaccination campaign was carried out for the elderly population. This campaign was done using mobile caravans circulating house to house, maintaining social distancing and the wearing of masks. 68% of senior citizens were vaccinated in 2020, compared with 25% in 2019 and 20% in 2018.

Testing for Covid-19 has also been a priority from the start of the pandemic. Not only all front-line health workers were tested for COVID-19 regularly, but testing was also carried out in asymptomatic persons who were susceptible to infection. People having symptoms compatible with COVID-19 were tested, which included those having a history of cardiovascular disease, hypertension, diabetes, and lung disease.

The rapid response by the Mauritian Government, and appropriate and strong support and compliance from the public, were key factors towards the control of the pandemic in this island nation. The Mauritian authorities prioritised the health and well-being

of their citizens over tourism and the national economy. At the time of writing, 340 of 368 people with registered infection in Mauritius have recovered, ten have died, and 18 remain active cases.

As of Sept 24, borders are still closed to prevent a second wave. However, in the context of repatriation of Mauritian citizens and those who are holders of resident permits, all passengers will undergo a PCR test before they are permitted to board a flight back to Mauritius. While on the flight, a health surveillance card is provided to record any symptoms before landing. Upon arrival, a temperature check is undertaken. Under the guidance from the Ministry of Health and Wellness, the passengers are directed to quarantine centres where a PCR test is performed on the first day. Retesting is done on the seventh day and 14th day before leaving the guarantine centres.

COVID-19 has only been present in Mauritius for 6 months and it may present a long-term health and economic challenge to the nation. We are now only starting to learn about the long-term health complications resulting from the infection, and

Mauritius plans ongoing surveillance of all COVID-19 infected people to document possible long-term complications.

We declare no competing interests.

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- World Life Expectancy. Mauritius: diabetes mellitus. https://www.worldlifeexpectancy. com/mauritius-diabetes-mellitus (accessed Iuly 27, 2020).
- Bornstein SR, Rubino F, Khunti K, et al. Practical recommendations for the management of diabetes in patients with COVID-19. Lancet Diabetes Endocrinol 2020: 8: 546–50.
- Blavatnik School of Government. Oxford University launches world's first COVID-19 government response tracker. 2020. https://www.bsg.ox.ac.uk/sites/default/files/2020-03/Oxford-Covid-19-Government-response-tracker-press-release%20.pdf (accessed July 28, 2020).
- 4 WHO. Coronavirus disease (COVID-19) advice for the public. 2020. https://www.who.int/ emergencies/diseases/novel-coronavirus-2019/ advice-for-public (accessed July 28, 2020).